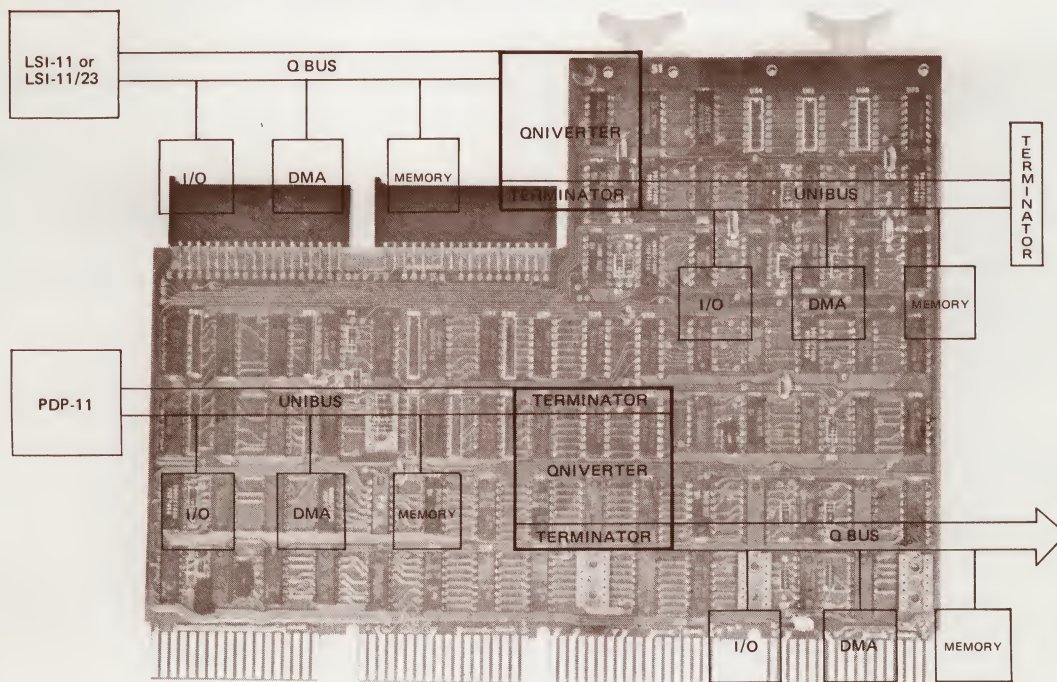# ABLE COMPUTER

QNIVERTER™
(Dual-Purpose Bus Converter)

QNIVERTER allows the LSI-11* Q Bus to access Unibus* compatible devices OR the PDP-11* Unibus to access LSI-11 compatible devices.

FEATURES

QNIVERTER provides the user with a choice of applications which allow:

- Readily available Unibus devices to be used on an LSI-11 computer system, or
- Less expensive and more compact LSI-11 devices to be used on a Unibus computer system.

QNIVERTER supports the features of the LSI-11/23 including:

- Four-level interrupt structure
- Memory parity
- Full 256K byte addressing

QNIVERTER is software transparent to the host computer.

As an added bonus, QNIVERTER provides extended bus load capabilities:

- Q Bus drive capability equivalent to an LSI-11 computer can be added to a Unibus computer system, or
- 19 Unibus loads can be added to an LSI-11 computer system.

We reserve the right to improve our products at any time.
10067X08-1279

GENERAL DESCRIPTION

The QNIVERTER is a quad-width board which performs one of two user selected functions:

- Permits an LSI-11, LSI-11/2, LSI-11/23, PDP-11/03, or PDP-11/23 computer system to access Unibus compatible controllers and memories. The LSI-11 remains as bus arbitrator and all latency specifications are bound by the LSI-11.

- Permits a PDP-11 Unibus system to access LSI-11 compatible controllers and memories.

With QNIVERTER, memories and controllers may reside on both the Unibus and Q Bus. NPR data transfers are supported across the QNIVERTER in either direction.

The QNIVERTER installs into a quad slot of an LSI-11 backplane and interfaces to the Q Bus via the A and B connectors. A pair of Unibus connectors on the board provide connection to a Unibus cable.

LSI-11 COMPUTER SYSTEM WITH UNIBUS DEVICES

Installation

The QNIVERTER can be installed into any quad slot of the LSI-11, LSI-11/2, LSI-11/23, PDP-11/03, or PDP-11/23 systems. Other LSI-11 interfaces and memories can be located ahead or behind the QNIVERTER. Devices located behind the QNIVERTER have a lower interrupt and NPR priority than the high speed Unibus devices.

System Configuration

To include QNIVERTER in an LSI-11 system, the following user-supplied equipment is needed:

- Unibus cable
- M930 Unibus terminator or equivalent
- Unibus backplane for installation of memories and controllers
- Appropriate power source

Specifications

Power Required	2.5 amps @ +5 volts ±12 volts not required
Unibus Drive Capability	19 Unibus loads

UNIBUS COMPUTER SYSTEM WITH LSI-11 DEVICES

Installation

For use with a Unibus computer system, QNIVERTER must be installed in the first quad slot of an LSI-11 backplane (the slot normally occupied by the LSI-11 processor). Memories and DMA devices are installed in the LSI-11 system according to standard LSI-11 bus loading requirements and installation procedures.

Installation of QNIVERTER for this application requires one jumper change and plugging the supplied termination networks into appropriate sockets.

The QNIVERTER is connected to the Unibus system via a standard Unibus cable. The QNIVERTER is electrically the last device on the Unibus and provides the far-end Unibus termination; the LSI-11 controllers are lower priority than Unibus devices.

System Configuration

To include QNIVERTER in a Unibus computer system, the following user-supplied equipment is needed:

- Unibus cable
- Quad LSI-11 backplane for installation of QNIVERTER and LSI-11 devices
- Appropriate power source

Specifications

Power Required	3.2 amps @ +5.0 volts (which includes Q Bus terminator) ±12 volts not required
Drive Capability	Equivalent to an LSI-11 computer

ORDERING INFORMATION

Model	ABLE Order Number	Description
QNIVERTER	10067	Quad-width board; Unibus cable not included.

SPECIAL CONSIDERATIONS

1. QNIVERTER is designed to operate with a single computer performing bus arbitration; it is not intended to be used as an interprocessor function.

2. Certain LSI-11 applications mounted in dual-width backplanes will not physically accommodate the quad-width QNIVERTER.

3. For use with QNIVERTER, the quad-width LSI-11 backplane must provide Q Bus on the A and B connectors but may provide Q Bus on the C and D connectors as well.

SOFTWARE

The QNIVERTER is software transparent to the host computer.

ABLE has created a veritable store of DEC computer enhancements. ABLE's unique products help you get more out of your PDP-11. Look at our current product listing . . . you will find solutions of genuine value.

SPECIAL MEMORY PRODUCTS

SCAT/45 (330 nsec Fastbus Memory)
CACHE/45 (2KB Fastbus Cache)
CACHE/434 (8KB Unibus Cache)
CACHE/440 (8KB Unibus Cache)
EMULOADER (ODT/Boot Loader)

GENERAL PURPOSE PRODUCTS

QNIVERTER (Dual-Purpose Converter)
UNIVERTER (Converter with Map)
REBUS (DB11-A Replacement)
DUAL I/O (Dual DR11-C)
INTERLINK (DR11-B Replacement)
BUSLINK (DA11-B--Unibus/Q Bus)

COMMUNICATIONS PRODUCTS

QUADRASYNC (4-line DL11)
QUADRASYNC/E (4-line DL11-E)
QUADRASYNC/LSI (4-line DLV11)
QUADRACALL (4-line DN11)
DMAX/16 (DH11 Replacement)
DV/16 (DV11 Replacement)

. . . . . *And you can always expect more to come from ABLE Computer.*

ABLE COMPUTER

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